

**APPARATUS AND METHOD FOR EFFICIENTLY PRODUCING
HIGH QUALITY LAMINATING SUBSTRATES USING LIQUID
LAMINATES AND A RESULTING LAMINATED
PRODUCT THEREOF**

ABSTRACT OF THE DISCLOSURE

5 The present invention comprises a wicket conveyor for conveying a series of wickets through pre-curing, curing and post-curing sections of a curing system. The wicket conveyor forms a continuous loop, having a straight upper track portion, a straight lower track portion and a pair of curved end portions of track that adjoin each end of the straight upper and lower track portions. Each wicket is attached to the wicket conveyor track such that the plane of the wicket is oriented at a predetermined angle. B wicket picks up a horizontally oriented sheet and carries it toward the pre-curing section. The wicket and substrate sheet are reoriented in response to the contour of the conveyor, into a near vertical planar orientation. While in the near vertical orientation, liquid coatings on the surface of the sheet substrate move down the substrate sheet in "sheet flow," thereby leaving a smooth coating surface prior to curing. Wickets and the substrate sheets riding the wickets are approximately parallel with one another and closely spaced in straight portions of the conveyor, such as the space during pre- and post-curing sections. Bs a wicket enters the curing section, it follows the contour of the track around the distil end of the conveyor. That wicket falls away from the next wicket on the track, thereby opening a gap between the adjacent wickets. Bt this point, both wickets and sheets are irradiated with UV rays, causing UV curable laminates to be cured on the front, rear and sides of the substrate sheets as well as all parts of the wicket conveyor and wickets. Prior to entering the post-curing section, the wicket and substrate sheet are once again reoriented into a near vertical planar orientation and approximately parallel with other wickets in the post-curing section. In the post-curing section, excess latent heat is disputed from the sheets. The sheets are then unloaded for subsequent processing.